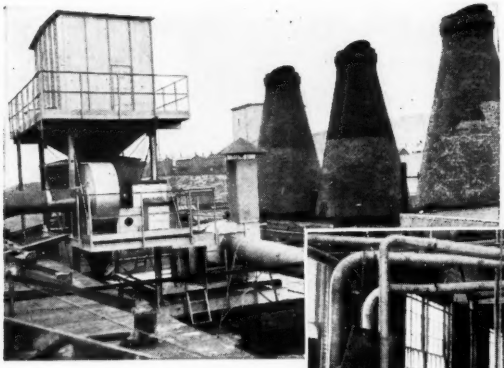
Occupational HAZARDS & SAFETY

SEP 12 1939

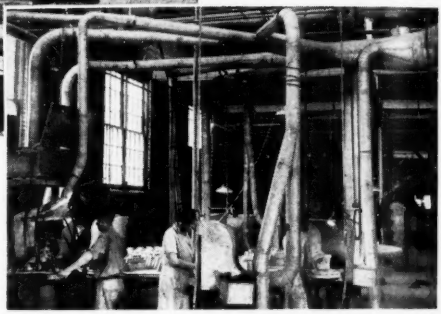
SEPTEMBER 1939

There's Profit in Prevention

BETTER DUST and FUME CONTROL

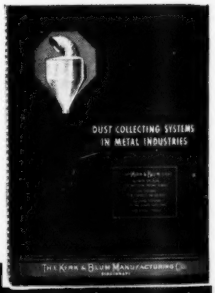


Views of Kirk & Blum installation at plant of large manufacturer of porcelain electrical insulators. System shown below removes dry clay dust and chips from drilling machine and seven other stations around the circular table.



KIRK & BLUM Dust Control Systems and Fume Removal Systems, scientifically designed and specially constructed to reduce the dust and fume menace, keep the air throughout the plant cleaner, healthier with utmost economy—improve working conditions—increase production—insure a better product—cut plant maintenance costs—save on insurance rates.

Our Engineers will make a study of your dust and fume removal problems, and explain how to overcome them efficiently and economically. Details of this service on request. Send for interesting illustrated book.



THE KIRK & BLUM MFG. COMPANY

2802 Spring Grove Avenue Cincinnati, Ohio

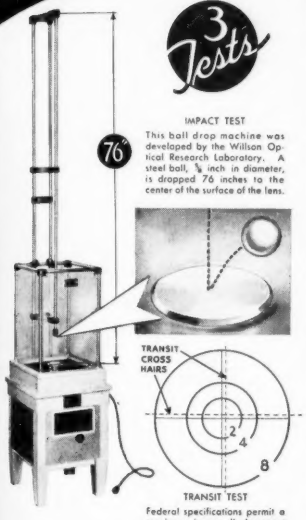
Chicago Representative: C. P. Gulon, 1661 N. Milwaukee
Pittsburgh: The Bushnell Mchy. Co., 311 Ross Street
Louisville: Liberty Eng. & Mfg. Co., Inc., 1450 S. 15th St.

KIRK & BLUM

DUST AND FUME CONTROL

ENGINEERS AND CONTRACTORS

Specify DOUBLE WILLSON FLAT Super-TOUGH Lenses for FREEDOM FROM DISTORTION RESISTANCE TO IMPACT··


3 Tests
IMPACT TEST
This ball drop machine was developed by the Willson Optical Research Laboratory. A steel ball, ½ inch in diameter, is dropped 76 inches to the center of the surface of the lens.
76"
TRANSIT CROSS HAIRS
2
4
8
TRANSIT TEST
Federal specifications permit a maximum image displacement of 4 minutes of arc. Super-Tough Lenses displace the image less than 2 minutes of arc.

Proper Heat Treatment Results in Uniform Stress Distribution—Left above: Polarized Light Pattern showing uniform stress distribution over entire lens surface. Every Super-Tough Lens is subjected to this test. Right above: This lens has been subjected to sufficient impact to break it. Note even distribution of fracture.

Do Not Accept Substitutes

Clear comfortable vision is just as essential to your Eye Safety Program as is the tough protective quality of your lenses, and Willson *Flat* Super-Tough Lenses provide both to the highest degree.

Because they are *Uniformly* "heat-treated," Willson *Flat* Super-Tough Lenses provide maximum protection against Industrial Hazards, whether chips of steel, splashes of molten metal, chemicals or dust.

Because they are ***FLAT,*** Willson Super-Tough Lenses are free from aberration and distortion.

All Willson *Flat* Super-Tough Lenses are *individually tested* before shipment and meet requirements which are far more severe than Federal Specifications.

Whether clear, or Willsonite, the cool green scientific lens for glare protection, Willson *Flat* Super-Tough Lenses are used in a great variety of Willson Safety Goggles and Spectacles.

Identify them by these trademarks stamped on every genuine Willson Super-Tough Lens—

W Clear Super-Tough

Wn Willsonite Super-Tough (Shades A, B, and C)

Complete Willson Catalogue on Request

DOUBLE WILLSON PRODUCTS INCORPORATED READING PENNSYLVANIA

INDUSTRIAL SAFETY EQUIPMENT ASSOCIATION

GOGGLES RESPIRATORS HELMETS

Useful Free Literature

The publications briefly described in this service department are prepared by manufacturers' technical experts. The data they contain on equipment supplies and prevention methods applies to varied phases of occupational hazard problems.

173—CLEANING PREPARATIONS

A beautifully printed brochure in commemoration of thirty years in business has been issued by Oakite Products, Inc. This interesting book describes the many industries in which the company has worked on cleaning problems and has in addition an interesting, short description of the background of each.

174—LUBRICATION DISINFECTANTS

Certain aspects of the disinfection of cutting compounds are described in the new booklet "Wescol—a Practical Disinfectant" published by the West Disinfecting Company.

175—FLOOR RESURFACER

An acid-resistant floor resurfacer that is impervious to oil, grease, and similar industrial fluids is announced by the Flexrock Company. The new product is called Rockflux, and should be of interest to anyone contemplating resurfacing of their floors.

176—ACID PUMP

Drawing acids with a minimum of fumes is the achievement of the new Thompson Pneumatic Acid pump, which is suitable for use on 5 and 10 gallon carboys, and 50 gallon barrels. The device is fully described in Thompson's folder, which is now available.

177—CLEANSER

Facts about Annite for industrial cleaning are contained in an illustrated folder issued by the Quigley Company.

178—MARKING DEVICES

The M. E. Cunningham Company announces a new line of safety stamps, and a new device for marking curved surfaces. Both products are explained in an illustrated folder just published.

[*Continued on next page*]

FREE LITERATURE COUPON

Clip out and paste on postcard or enclose in envelope.

Nos. of desired items .....

Firm Name .....

Your Name ..... Position .....

Street and Number of Your Firm .....

City ..... State .....

FL-12

Economy of BRADLEY Washfountains Appeals to Scotch

View shows three of nine Bradley Washfountains in the Grangemouth, Scotland plant of Scottish Dyes Limited.

● The lower cost of installation, the long life—and the assured reduction in water consumption of 70%—all add up to thrift. And Bradley Washfountains supply more washing facilities in less space. . . . These savings plus the modern sanitary features of Bradley Washfountains are the reason for the thousands of Washfountains used in all parts of the world. . . . Your plant, too, present buildings or new, can be modernized out of the savings effected. . . . Let us mail a copy of our Washroom Layout Book. BRADLEY WASHFOUNTAIN CO., 2259 W. Michigan St., Milwaukee, Wisconsin.

One Washfountain to serve 9 to 10 men at one time requires no more piping connections than a one-person basin.

BRADLEY WASHFOUNTAINS

178—FIRE PREVENTION

"Firefax," the organ of the Pyrene Manufacturing Company contains much interesting material on fire-prevention as well as fact and comment on a variety of subjects.

179—INDIVIDUAL DUST CONTROL

Information can be had on the system for individual dust control which has been developed by Kirk & Blum Manufacturing Company. The system is highly efficacious in isolated grinding, polishing, and buffing operations, and should be of interest to anyone having a problem of dust control at the source.

180—SELF ADHERING GAUZE

Literature on Gauztex is available, describing this new gauze that sticks to itself, thereby making quick, neat dressings.

181—RESPIRATORS

A catalogue has just been issued by the Pulmosan Company showing their entire line of respirators for a variety of uses.

182—GUARDS

The Consolidated Expanded Metal Companies have issued a new booklet describing the many uses of their latest development—Safe-T-Mesh—which is totally free of sharp edges. It is intended for guards, trays, fences, etc.

183—CHLORINE MASK

New literature describing the M.S.A. Chlorine Mask and Canister is now available. The new mask is approved by the U. S. Bureau of Mines, and is an essential device for all those using or handling chlorine.

184—METAL SIGNS

A comprehensive catalogue folder printed in color has just been issued by Stonehouse Signs, Inc., of Denver, Colorado. In it are described, illustrated, and priced, the many stock signs immediately available for a wide variety of safety, prevention, and good housekeeping purposes.

Protectors In Standard Safety Code

This is the fifth in the series of recommended protectors as set forth in the revised copy of "The American Standard Code for the Protection of Head, Eyes and Respiratory Organs."

Mechanical-Filter Respirator

Protectors for exposure to dust, fumes, mists, smokes, or other atmospheric particulate matter—A mechanical-filter respirator, an air-line respirator, a hose mask, or an oxygen breathing apparatus is permissible.

These respirators shall be complete with all requirements for safe use against the types of atmospheric particulate matter for which they are designed. They may include a chemical filter if desired, or if simultaneous protection is required by a protector for exposure to irrespirable gases and vapors (which will be discussed in a later issue).

These respirators shall be constructed in all their parts of materials obviously suitable for the purpose they serve. This applies to the fabric, rubber, metal, and other parts. All rubber parts that come in contact with the skin shall be of a non-irritating composition. Rubber shall satisfy physical tests combined with ageing tests. The rubber and metal parts shall withstand sterilization.

The respirator when in place on the wearer shall permit the use of various types of goggles without impairing the effectiveness of either goggles or the respirator, or the goggles may be permanently attached to the respirator, or a full facepiece as in a gas mask may be used.

Component Parts—Mechanical-filter respirators shall consist of a mechanical filter, inhalation valve, exhalation valve, a facepiece, or a mouthpiece and nose clip, and a suitable head harness or equipment for retaining the respirator comfortably and snugly in its proper position.

Mechanical Filter—All of the wearer's inspired air shall be drawn through the mechanical filter. The filter shall remove mechanically generated dust to the extent indicated by the test of the United States Bureau of Mines. The arrangement of the filter shall be such as to permit it to be cleaned or replaced readily without leakage of unfiltered air after such changes have been made.

Facepiece—The facepiece shall not interfere with the wearer's safety, vision, or freedom of movement, and it shall be reasonably comfortable; and facepieces of other than the full-face type shall not interfere with the wearing of goggles.

Head harness—The straps of the head harness shall be adjustable and replaceable.

[*Continued next month*]

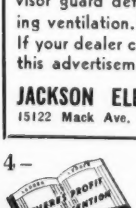
Type C-5
Patent Pending

Send for folder describing this and thirteen other types.

JACKSON Eyeshields

This light weight eyeshield has a transparent Cellulose Acetate visor with full metal binding. Adjustable to any angle, it is non-fogging, provides excellent vision without distortion. Unaffected by sparks, hot metal particles will not adhere. Fibre visor guard deflects sparks without checking ventilation. Price $1.30 F.O.B. Detroit. If your dealer can't supply you, order from this advertisement.

JACKSON ELECTRODE HOLDER CO.
15122 Mack Ave. Dept. O-1 Detroit, Mich.



A Tip

HERE'S a tip to those of you in and around New York City. The Pratt Institute is giving a course in Safety Engineering, meeting Monday, Tuesday, and Thursday evenings for one hour; starting September 26 at 7 P.M. Mr. C. George Krueger, Deputy Commissioner of Labor of New Jersey, will give the course, and it costs fifteen bucks. If you're interested why don't you drop around or write the School Office. Consultation periods begin September 14—7 to 8:30 P.M. Mondays, Tuesdays and Thursdays.

"Life Begins—"

Our ubiquitous friends, the Bureau of Old-Age Insurance of the Social Security Board, tell us some encouraging news. They find that industrial workers reach their maximum earning capacity in the period from 45 to 50 years of age. And that their earning capacity doesn't fall off appreciably in the next twenty years. The point is that a man between 45 and 65 is, of course, capable of greater productivity and responsibility. There are a lot of false impressions on this subject.

Occupational Hazard . . .???

We're not quite sure whether getting hit on the head with a baseball while playing on an industrial team is an occupational hazard or not. Anyway, it *is* a hazard. And to our aid comes the Mines Safety Appliance Company with the suggestion that their Skullgard (a light, protective helmet made of laminated bakelite) makes an excellent baseball headgear as well as its industrial applications. In some leagues, the balls fly wildly. You can very easily see why it might be nice to have the Skullgard between you and the ball. As a matter of fact, the M.S.A. Skullgard has been used for a long time by polo players as protection against head injuries.

Dollars and Sense

Mike O'Neil of the Firestone Tire & Rubber Company said awhile back . . . ". . . I think the management's viewpoint on safety, as far as the economic or dollar side is concerned, is well understood; because, it has been proven time and time again that the best production records and the best cost records and the best accident records go hand in hand. . . ." And may we add . . . that accidents and accident prevention are just as much a matter of cost accounting as production itself? When you think in terms of occupational hazards and accidents, think in terms of dollars and cents. That's what counts. You'll see how true it is that "There's profit in prevention." And you'll see how and where you can spend a little money to save a lot. Which is what we all want.

Underwriters' Inspected Materials

Underwriters' Laboratories, Inc., have issued supplements to January, 1939 list of Inspected Fire Protection Equipment and Materials; and a supplementary list to the December, 1939 list of Inspected Gas, Oil, and Miscellaneous Appliances. Of particular interest in the former is the approval of certain air filters; in the latter list are Discharge Devices for Hazardous Liquids, and accessories, safety combustion controls for both oil and gas burners, and certain tanks and handling equipment for hazardous materials—particularly liquids. The new lists approve many devices that should be of interest to any one concerned with prevention of industrial hazards.

NATIONAL SAFETY CONGRESS

Atlantic City, October 16-20, 1939

UNDER the title of "Governmental Safety Service in Industry" the program of the 26th National Safety Congress, to be held in Atlantic City, New Jersey, October 16-20, announces two half-day sessions, the first entitled "The State's Administrative Job," and the second, "The State's New Outlook."

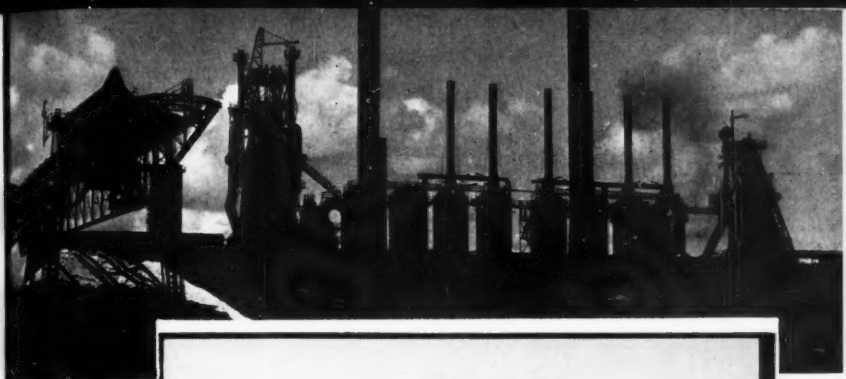
Mr. T. A. Wilson, chairman of the North Carolina Industrial Commission, is scheduled to preside at the first session which will include a talk by Mr. Voyta Wrabetz, chairman of the Wisconsin Industrial Commission, on "Unification of State Safety and Health Codes Between States," a panel discussion on the subject "The Factory Inspector—What Manner of Man Is He?" including remarks by Mr. Cyril Ainsworth, assistant secretary, American Standards Association, "What Qualities Should a Factory Inspector Possess?" Mr. V. A. Zimmer, director, Division of Labor Standards, U. S. Department of Labor, "What Training Should a Factory Inspector Receive?" Mr. McA. Keown, engineer, Wisconsin Industrial Commission, "How Should a Factory Inspection Be Made?" The program also includes a talk by Mr. Max D. Kossoris, senior statistician, U. S. Bureau of Labor Statistics, on the subject, "Accident Statistics in the World of Tomorrow." Mr. R. L. Forney, statistician of the National Safety Council will discuss "Industry's Experience with Accident Cause."

Mr. John Roach, Deputy Commissioner of Labor, New Jersey, is scheduled to preside at the second session which includes a talk by Mr. J. T. Faust, chief deputy factory inspector, Illinois Department of Labor, on "Carrying the Safety Message to the 92 Percent." Mr. W. H. Winans, Union Carbide Company, will present the industrial executive's viewpoint of what the safety services of a governmental agency should be, under the title of "What Do I Get for My Money?" Dr. Leonard Greenburg, Executive Director, Division of Occupational Hygiene, New York State Department of Labor, will discuss "The Regulatory Approach to Occupational Disease Control," covering both control by the establishment of permissible limits of concentration for toxic substances and control by codes setting forth the engineering details of exhaust systems.

A new and practical way to bandage now used in thousands of plants. It is Gauztex. Cohesive. Use instead of gauze or adhesive tape. Easy to use. Men like it. Keep them on the job. Write for free samples, literature, and prices. General Bandages, Inc., 508 S. Dearborn Street, Chicago, Illinois.

Gauze that Sticks Only to Itself

GAUZTEX
THE SELF ADHERING GAUZE



OCCUPATIONAL Hazards AND Safety

CONTENTS FOR SEPTEMBER 1939

	Page
Free Literature	2
Protectors in Standard Safety Code	4
The Safety Valve	5
National Safety Congress Meets in October	6
Arithmetic In Eye Injury Prevention	8
Hygiene and Control of Dermatoses	11
ABC's of Industrial Dust Control	14
Safety First in Public Relations	19
Industrial Vacuum Cleaning	21
Right Off the Docket	24
New Products in the Field	26
This Month in Washington	28

Vol. I, No. 12

Copyright, 1939, by the INDUSTRIAL PUBLISHING CO. Published Monthly.

812 Huron Road, Cleveland, Ohio

L. P. Aurbach, Vice-President

William S. Papworth, Associate Editor

Irving B. Hexter, President

ARITHMETIC IN EYE INJURY PREVENTION*

From information and data secured and compiled by the American Optical Co.

DURING the year 1937 it cost this country $700,000,000 for occupational accidents. $700,000,000 is a lot of money—more than a recent Naval Rearmament Bill passed by Congress to build 23 ships and two battleships. If any of you happen to come from the plants of manufacturers who make radios, electric refrigerators, or any other electrical equipment, you will be interested to know that $700,000,000 is more business than was done by all of the electrical wholesalers in this country during the year 1938.

The plant owner and the shop keeper have to foot this bill, but what you and I are most interested in is to find out what part of this bill your boss and mine have to pay.

Cost of Eye Injuries

Some time ago, I had an opportunity to make an analysis of the cost records of more than two hundred and thirty-four thousand compensable accidents. These were accidents for which the insurance companies actually paid out money for medical expense and for compensation. An analysis of the costs showed that 5.31% of the money was paid for eye accidents. If we apply this percentage against the total of $700,000,000, we find that approximately $37,170,000 is paid out yearly to cover the cost of eye accidents.

A few months ago the National Association of Manufacturers issued a booklet called "Do Good Working Conditions Pay?" This is a report made by Dr. Victor G. Heiser, Chairman of the Committee on Healthful Working Conditions. In this booklet Dr. Heiser states that about 30,000,000 people are employed in industry. This figure includes those who work in offices as well as those who work in the shops.

If we divide the $37,000,000—

By KENNETH SUTHERLAND

* A paper presented at the Michigan Statewide Safety Conference.

the cost of eye accidents—by the 30,000,000 people, we arrive at a figure of $1.23 which is the cost per worker per year for eye accidents. The importance of this figure can be easily recognized when you realize that a good pair of goggles can be bought for about $1.75.

Now I'd like to digress for a minute. Dr. Heiser says that there are 30,000,000 people employed in industry. A recent magazine article showed that in the peak year of 1929 a little less than 9,000,000 were employed in industry. Somewhere between the 9,000,000 figure and the 30,000,000 lies the correct number, and if you divide this into the $37,000,000 you will get a figure much greater than $1.23, and probably much greater than the actual cost of a pair of goggles.

Organized Prevention Lowers Cost

Bear in mind that this is an *average* figure. There are many plants whose records show that eye accident costs are much less than $1.23, but I call your attention to the fact that there will be many more whose costs run over that figure in order to average it up.

I think it can be safely said that any plant which does not have an organized safety program is paying more than $1.23 per man per year for eye injuries. It may be possible to go through one year with a cost below this, but the law of averages will square the account unless adequate eye protection is provided in the meantime. This figure of $1.23 justifies the statement that you pay for goggles whether you buy them or not.

For Example

Let's forget these statistics for a few minutes and figure out the cost of an eye accident based on your own plant hourly rates. I'm going to show you a typical example and if the rates quoted for machine time and

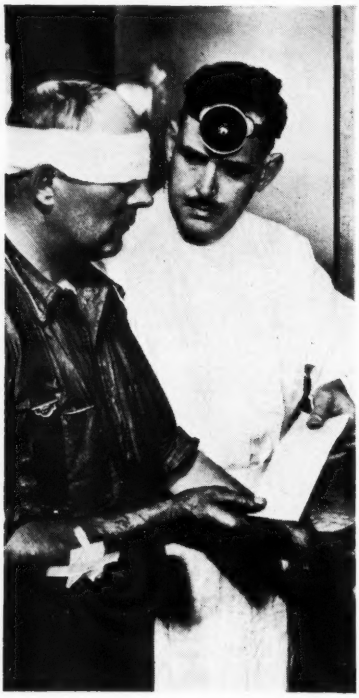
Goggles saved this workman from a serious injury from a large piece of flying metal.

operators' time are not the same as yours you can make adjustments to fit your conditions and then arrive at your cost.

Let us assume that one of your semi-skilled men gets a tiny chip in his eye. He stops work and gets a fellow worker to see what the trouble is, walks to the first aid station, is sent to the company doctor where he has the chip lifted from his eye,

and he goes home to nurse his injury. He comes in the next day and goes to work with two brief trips to the first aid room for treatment, and he has no further trouble. I think we can consider this as a minor injury. The worker is out a half day only and requires only two brief visits to the plant hospital upon his return.

Now let's look at the figures. He is out a half a day, which we'll call four hours, and we assume that his rate is 70c, so that makes a total of $2.80. On the second day he makes two trips to the plant hospital of a half hour each and that's another hour so we'll add that in as 70c. His machine is idle during these five hours and we'll charge the machine rate at $1.50, making a total of $7.50. The cost of first aid including bandages, treatment, and medical supplies that are used, total about $3.00. While the man is out it is necessary for the foreman to spend a little time re-arranging the work, or arranging for someone else to do the work on another machine and we'll charge the foreman's time at 60c. This makes a total of $14.60 for this minor eye injury, and I call your attention to the fact that a pair of goggles can be bought for about $1.75.



Eye injuries require expert, and often costly, care. No one gains in such a situation. A good pair of goggles would have prevented this.

It is quite probable that these hourly rates do not agree with yours, but whatever your rates are, I doubt if you can get the cost of this eye injury down below six or seven dollars, which would be the cost of a pair of goggles per year for several years. If you will figure out the cost of the next minor eye injury that happens in your plant, I think you will agree that *the slightest eye injury costs more than the goggles that would have prevented it.*

If your plant is self-insured, the figures which I am about to give you will be extremely interesting. As mentioned before, I had an opportunity to analyze the medical compensation cost of more than 234,000 compensable accidents. Here are some figures that will interest those who are self-insured. The *average* compensation and medical cost for an eye injury is $343. This is money

[*Continued on page 30*]

HYGIENE and Control of DERMATOSIS

By Stuart F. Meek, M.D.

THE most completely efficient method of preventing industrial dermatoses is to eliminate skin contact with irritants. The use of closed methods of manufacture, ventilation, plant cleanliness, and protective clothing are all means to this end. Where such procedures prove inadequate, protective creams or ointments are often valuable adjuncts in preventing dermatoses. A number of different types of ointments are now marketed, and there are specific protective coverings for each exposure. It is readily apparent that one ointment can not be expected to give maximum protection from solvents like naphtha, oils, emulsions, aqueous solutions, and dusts. Rather it is to be expected that naphtha exposures will be protected by a different preparation than that required for aqueous solutions.

Various proprietary preparations are sold as oil disinfectants. Some such disinfectants used in cutting oils or grinding compounds in high dilution such as 1:1500 are effective in reducing the bacterial content to such an extent that dermatitis does not occur. Before recommending the use of oil disinfectants, responsible medical authority will need to examine

them in detail. Study of the causes of oil dermatitis or oil acne will reveal that, in addition to micro-organisms in the oil or grinding compound, a number of other factors are to be considered. These latter factors, according to some theories, are much more important as regards the cause of oil dermatitis than is the bacterial content of the oil. Fine metallic particles will produce abrasions of the skin providing portals of entry for infection. In circulating systems, these cutting oils contain many such particles. These are best removed by a process of filtration, centrifugalization, magnetic separation, or a combination of these methods.

Tests Desirable

Other theories hold that oil dermatitis results from obstruction of hair follicles. Such obstruction is believed to be due to mechanical blockage by dirt or fats, or due to a specific proliferative effect of certain hydrocarbons on the cells lining the follicles. Such theories furnish clues to the type of personal hygiene most effective in preventing oil dermatitis. The obstructive theory on oil dermatitis demands washing to cleanse follicles, and sometimes the use of bland ointments to insert a clean plug into the follicles before other fats and dirt can enter.

Actual tests should be made to determine the concentration of disinfectant required to produce bactericidal effects. These tests give an unbiased appraisal of the value of any particular disinfectant, and the difference between the maximum safe concentration for the skin and the minimum concentration necessary for actual disinfection will be an index as to safety of use.

Personal Hygiene

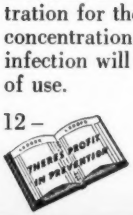
Many work situations are such that a dermatosis risk cannot be eliminated by any of the measures given above. When it is necessary that the skin be

Scientific, well built washing fountains make it easy for workmen to keep clean.

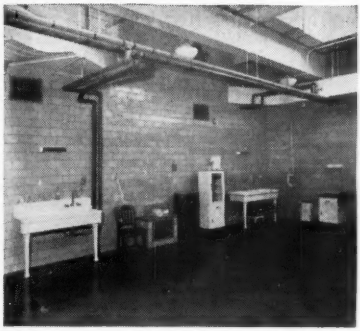
in contact with materials potentially capable of causing harmful effects, the factor of personal hygiene becomes very important. It is true that certain individuals may develop an immunity to certain classes of irritants after a brief period of initial exposure. Even so, such workmen are necessarily under constant medical supervision.

In addition to protective clothing and ointments, personal hygiene involves all other methods of cleansing and protecting the skin. Those medically responsible for the prevention of industrial skin disorders should sponsor a vigorous educational campaign. The manner in which substances affect the skin and cause dermatosis is a sound basis for devising a system of hygiene to counteract the effect of each irritant.

It is apparent that a medically sponsored skin hygiene campaign consists



essentially of two parts: (1) Education of plant management and supervision leading to provision of adequate washing facilities, towels, hot water, safe soaps, ointments, etc. In showers and special lockers with a system of changing to clean work clothing daily may be necessary. The defatting substances encountered in some occupations may necessitate the use of bland ointments to counteract the effects of fat and oil losses from the skin. (2) Workmen must be made to understand the reasons for these facilities and the proper way to use them because only in this manner is complete co-operation likely. Employees should know the dangers involved in using improper cleansing agents such as turpentine, other solvents, abrasives, and strongly alkaline soaps or solutions.



The dispensary shown here is typical of modern industrial equipments for prevention and cure of dermatoses and other industrial diseases. Prevention, as well as cure, is the aim of enlightened management.

Three-Fold Plan for Prevention

In conclusion, it cannot be overemphasized that responsibility for the control of occupational dermatoses includes: (1) Arrangements for prompt reporting of every case of skin disease. (2) Facilities for immediate and accurate diagnosis. (3) Proper treatment.

Prompt reporting of skin disease not only lessens disability because immediate treatment is provided, but lessens disability by the avoidance of harmful self medication. Immediate and accurate diagnosis is necessary to insure proper treatment early in the progress of the disease and to recognize complicating factors. The quicker a sensitivity reaction is diagnosed and the employee removed from exposure, the less will be the period of disability. In such cases, an additional week of exposure may prolong the disease for weeks or months.

Fungus infections, sensitivity reactions to fungi, and their interrelationship to occupational dermatoses are worthy of considerable study.

Northwestern Symposium in Chicago September 25th

The Department of Industrial Medicine of Northwestern University Medical School announces its Third Annual Symposium on Industrial Disease and Hygiene, to be held on September 25 and 26, 1939, at Thorne Hall on the Chicago Campus.

Registration will be limited to physicians, industrialists, safety engineers, hygienists, personnel and industrial relations managers, and others actively interested in industrial disease.

Subjects for discussion will be treated by well-informed, nationally known speakers, and it is expected that this year's symposium will make great contribution to the science of industrial welfare.

Industrial DUST CONTROL

By Roy P. Warren, Research Engineer
Buffalo Forge Co.
Buffalo, N.Y.

Part III—Problems in Specific Industries

The dust conditions brought about by the five major foundry processes are:

1. Preparation of mold core.
2. Melting and pouring of metal.
3. Breaking out castings from the mold, and removal of core sand.
4. Reconditioning the molding sand for further use.
5. Cleaning the casting.

General Ventilation

The importance of general ventilation is stressed and it is pointed out that, because dust production is not localized in foundries, efficient general ventilation should be considered in a design in control of dust-old foundry buildings and in the design of new foundry buildings. In this article on the subject, it is suggested that as a basis of design the following general averages might be:

1. For non-mechanized foundries —one air change every five minutes.
2. For mechanized foundries—one air change every three minutes.

Method of Control

1. Molding operators disperse relatively small amounts of dust. In a mechanized foundry it is pointed out that molding operations are carried on rapidly and in a concentrated area. Thus, local exhaust systems may be required; but in the majority of cases isolation of the molding work coupled with proper construction and layout of the molding room, together with good housekeeping and general ventilation, will produce results. Contamination of the molding area from other sources is to be especially avoided.

2. The method of controlling dust in core making is much the same as in molding. Isolation, construction, good housekeeping and a rigid cleaning schedule are very important. Core sand drying and screening should be carried on in ventilated booths, while core cutting on an abrasive saw or core rubbing should be ventilated by local exhaust systems.

3. Melting and Pouring—It is advanced that adjustable hoods for in-

dividual pots promote more effective control than one large hood over a number of pots. Again dust control is relative to another control—viz; that of accurate temperature control by which the amount of vaporization and oxidation of the metal is determined.

Local exhaust ventilation is required when continuous pouring takes place on a conveyor in a large production plant. This type of ventilation illustrates the health angle of dust control exceptionally well in that a reasonably small amount of air handled prevents the contamination of the rest of the foundry atmosphere with irritating gasses and fumes. A knowledge of proper face velocities through the openings is essential to successful control.

The good housekeeping element is emphasized and the use of water in wetting down the aisles is suggested and forewarning is given that foundry operators will object to this practice due to the possibility of the spattering of the metal. Great caution and well regulated operation are necessary.

4. Shakeout—This process causes dust contamination in a most objectionable and hazardous form and at the same time presents an extremely difficult operation to control.

Methods of shakeout vary in many ways. Whether or not work is done by hand or is mechanically accomplished, or whether it is carried on at a central point, will in general determine whether local exhaust ventilation can be used effectively. Several protective measures for the foundry which has shakeout operations all over are:

a. Allowing castings to cool as much as possible before shaking out.

b. Wetting down the molds and floor before castings are broken out, again after the flasks are dumped; and

This photograph shows an accumulation of soapstone dust that was picked up by vacuum at its source.

Courtesy Spencer Turbine Corp.

sometimes a third time before sand re-conditioning.

c. Taking care in the handling of flasks and bottom boards.

d. Handling hot castings carefully and removing them as quickly as possible.

e. The use of a night or off time shift for this work as soon as possible.

f. The use of general ventilation through fans in roofs or walls.

Informed sources advocate special type ventilators by means of which air movement in the foundry may be clearly controlled. This particular point is relatively new and untried. It is, however, being given wide publicity and it would appear that the

THERE'S PROFIT IN PREVENTION

theory of it is to be recommended for general ventilation.

In the case of central station shake-out the problem involves a thorough knowledge of the design of top

Exhaust for casting sanding operation. Castings are sanded before spray painting. Note grating with exhaust below grating and above table. Pipe velocity—4000 feet per minute. *Photo, Courtesy U. S. Dept. of Labor*

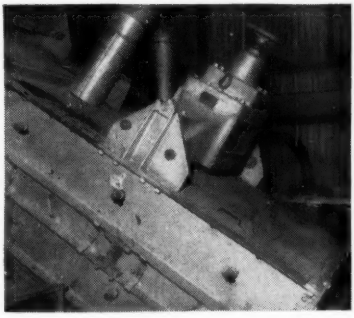
and/or side exhaust hoods. The use of cranes to move large pieces in many instances limits hoods to a side pull. Reference is made to Bulletin #217 United States Department of Public Health in which this matter is treated in great detail and which may serve as a fundamental starting point in attacking this problem.

5. Removal of core sand—The use of a well ventilated booth in which the simple process of knocking two castings together can be carried out is suggested. The use of chipping bars in the breaking out of cores in large complicated castings causes severe protracted exposure to workmen and again the use of ventilated booths, together with isolating the process, is advanced and supported. When sand chipping is replaced by core blowing by compressed air, ventilation is very desirable, even the use of water or sand water baths may require ventilation. Core knock-out machines should be enclosed with built-in ventilation.

Foundry operators can help themselves by removing the core sand as completely as possible before taking the casting to the cleaning room and thereby keeps the sand where it belongs and also keeps a cleaner cleaning room.

6. Sand Re-conditioning—In the small plant the use of water and an enclosed ventilated riddle is essential. Careful observance of good practice for complete enclosures, air velocities at openings, and in pipes will ordinarily give adequate control when there are mechanical devices for sand handling and conditioning.

7. Cleaning Rooms—With the exception of loading and unloading, together with open chipping and burring, the operations of an ordinary



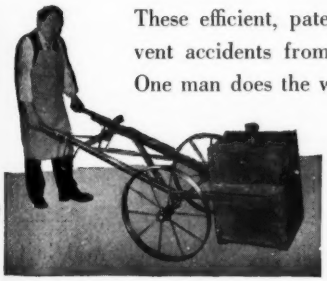
Vibrating machine, completely enclosed and exhausted, for maximum freedom from dust. *Photo, Courtesy U. S. Dept. of Labor*

cleaning room can be controlled by local exhaust systems. Tumbling, riddling, grinding, buffing and blasting are representative of these operations.

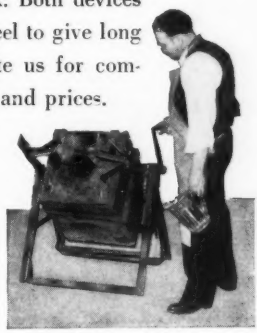
Complete line of Specialized Equipment for

SAFE HANDLING OF ACIDS and CHEMICALS

PULMOSAN CARBOY TRUCK and TILTER



These efficient, patented handling devices save time and prevent accidents from strain, dropping, spilling and splashing. One man does the work of two. The Carboy Truck is used for transporting carboys; the Tilter is used for safe, smooth pouring by means of a geared crank. Both devices of welded steel to give long service. Write us for complete details and prices.



Other items for Chemical Handling

FUME RESPIRATORS
SAFETY GOGGLES
CARBOY SIPHON
ACID HOODS
"PLY" SKIN CREAM
ACIDPROOF —APRONS, GLOVES and SLEEVES
ACID PAILS and DIPPERS

Write for leaflet "Safe Handling of Acids and Chemicals," for details

•Visit our Booths No. 47-48 at the Safety Congress!

PULMOSAN SAFETY EQUIP. CORPORATION

Dept. OH, 176 Johnson St., Brooklyn, N. Y.

Rules and regulations are generally found in mandatory codes which were brought about after much litigation on health hazard protection. A determined co-operative effort between industry and representatives of the regulatory groups is being made to set fair minimum requirements in order to bring this type of control within the grasp of the majority of foundries in operation.

Here again regular cleaning schedules and the observance of good housekeeping practices will permit the operators of the foundries to help themselves.

8. Personal Respiratory Protection —It is illustrated that either general and/or local ventilation will not accomplish *complete* dust control. It would be a rare case where the use of some approved type of mask is not necessary. Supervision on changing and maintaining these devices is required.

"BURNITOL"

Paper Cuspidors

For economical plant sanitation

BE SAFE! BE CERTAIN!
"BURN—IT—ALL!"

PROTECT workers' health. Promote plant cleanliness and sanitation. Replace unhealthful metal containers and eliminate costly, messy cleaning jobs. **It's Easy and Economical!** Just place "BURNITOL" Paper Cuspidors around machinery and other places within easy reach of workmen.

"BURNITOL" Paper Cuspidors are water-proofed, wire stitched, substantial. Cost only a fraction of a cent, more than pay for themselves. Used by leading manufacturers everywhere. Size 6½" x 6½" x 3". Three grades.

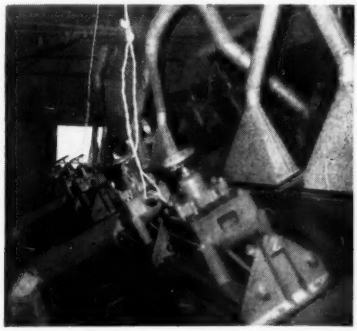
No. 7 per 1M—$13.00 No. 8 per 1M—$8.10
No. 9 per 1M—$6.25

Send For Your Trial Order Today

BURNITOL MANUFACTURING CO.
34 SULLIVAN SQ. BOSTON, MASS.

Summary

It is entirely proper that so much emphasis has been placed on the



health angle of dust control in the foundry. From the standpoint of equitable operation the field of reasonable requirements is now being explored and results should be forthcoming rapidly. The recent publication of data found in numerous surveys should permit real progress in this direction. Until then the economics of proper dust control presents a substantial obstacle in wide spread application of control.

The type of equipment involved in the disposal of the collected dust is discussed later in this series.

THIS is the third in a series of five articles by Mr. Warren on the various phases of dust control. In this article Mr. Warren has touched on the specific problems involved in certain operations.

Safety First in Public Relations

How the Hamm Brewing Company of St. Paul turns a safety device into a strong builder of good will . . .

DO YOUR company trucks and automobiles carry first-aid kits? Probably they do. And you, no doubt, have considered first-aid kits as one of those necessary, but profitable, preventive measures. So did the Hamm Brewing Company until recently. And then they made a discovery.

It often happened that one of their fleet would happen upon the scene of an accident; and because their drivers carried first-aid kits and were trained in administration of first-aid they performed valuable service to a great many people. And at the same time they noticed how few people were conversant with even the first essentials of proper first aid. This set them to thinking . . . something like this:

"If our men are able to perform this valuable service for accident victims why don't we advertise to the public that the facilities of our fleet are always at their service in emergencies. This way we can turn the expense of first-aid training and kits into a positive good-will builder." So before long all Hamm trucks bore this sign: "In Case of Accident, Stop This Truck!—Driver First-Aid Trained and Equipped" and the sign means just what it says. If you're on the highway—or anywhere—and need any kind of first-aid . . . you see a Hamm truck . . . you simply hail the truck . . . and you have the help of a man who knows just what to do. He's trained and equipped!

Results

Let's examine for a moment what this means to the Hamm Brewery. First of all, they have turned an expense into a great good-will builder. The cost of first-aid kits and training (while they have always more than paid for themselves in lessening the cost of accidents) is now paid for

many times over in the value of the advertising and good publicity derived from them. In addition, this experience has encouraged the brewery to expand their training and first-aid school to the point where they now have to hold classes five nights a week to accommodate all the employees who want to enroll.

And don't neglect the great benefit to the company from the increased safety conciousness in the plant and among the drivers as a result of this. Morale is better, accidents fewer, and they have a strong desire to be of service to anyone they can in an emergency.

And from a dollars and cents point-of-view, such a program definitely reduces workmen's compensation costs; it cuts the waste and cost of lost time, interrupted schedules, and poor service.

In conjunction with personnel training, it has been proved many times that proper maintenance of trucks contributes a definite operating economy, and in addition improves service, reduces accidents, and makes the fleet of trucks a positive good-will builder.

Any Fleet Can Do

While we have commented on the activities of the Hamm Brewery here, it should not be forgotten that the same principles can apply to any fleet, or any business. It need not be confined to trucks. Traveling salesmen, or any employees who drive in the course of their duties, could well take advantage of carrying first-aid equipment and of being informed on first-aid procedure.

To make such a program of maximum effectiveness, three things are necessary:

1. Thorough and proper training of employees, particularly drivers, in all types of precautionary effort; plus schooling in the principles of first-aid administration;
2. Proper maintenance of trucks and equipment; standardization of trucks and equipment as far as possible;
3. Equip all automobiles with first-aid equipment.

From such a program as this your company can expect three definite, positive advantages—and every one of them means money saved:

1. A tremendous amount of consumer good-will. It is impossible to estimate the great amount of good-will build up among the general public by the humanitarian activities of your employees and drivers. And it's not only an opportunity to get good-will, it eliminates the great possibility of creating ill-will in inadvertencies on the part of your drivers.
2. Lower costs on compensation paid; lower insurance costs;
3. Greater efficiency, lower trucking costs, a minimum of costly lost time, a minimum of interruptions to service.

And, not to be forgotten, while the main objective of such a safety program is essentially selfish—that of saving money—there is the opportunity to do a real humanitarian service. Many lives can be saved, many injuries made less serious, by such intelligent and socially-minded efforts.

PLAN TO ATTEND

The National Safety Congress and Exposition in Atlantic City, October 16-20

Industrial Vacuum Cleaning

By R. A. Brackett, The Spencer Turbine Company

Dirt and dust can be removed quickly, effectively. The savings, and the benefits "pay out"

IN these days when manufacturers are making serious efforts to reduce health, fire and explosion hazards it is encouraging to know that the menace of dirt and dust can be removed with concurrent savings that more than pay for the process of removal.

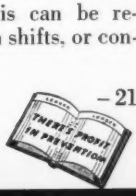
A recent survey of more than 400 manufacturers using powerful modern vacuum equipment to remove the dirt at its source shows that they have not only reduced the cost of cleaning ordinary floor, wall and ceiling surfaces, but have found many ways to reduce operating costs at the same time.

New uses are being reported every day, and the manufacturer who installs vacuum cleaning invariably finds one use that is peculiar to his industry. The subject is so extensive that only a general idea of the kinds of saving effected can be given here. On floor cleaning alone, in large areas, users report that the Vacuum System was paid for out of savings in three years. On walls and overhead pipes, the time of cleaning by hand is materially reduced. An ounce of dust overhead may be far more dangerous than a pound of dirt and debris on the floor. Dislodged by vibrations, drafts or by its own weight, it eventually comes down on the raw material work in process or the finished goods. It endangers the health of employees and is the factor that health and insurance inspectors watch very carefully.

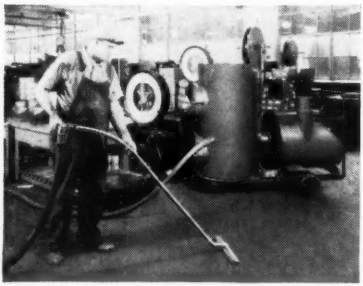
For Variety of Floors

There are at least a dozen kinds of factory floors. There are hundreds of kinds of dust and litter. A powerful vacuum is an excellent method for cleaning all kinds of material from any kind of floor satisfactorily and at low cost.

This system cleans wood block and old maple floors as easily as cement or linoleum. It can pick up coal dust, silica sand, oily sawdust, or soapstone dust quickly and thoroughly. It picks up cotton and lint, or metal chips, bolts and nuts with equal ease. It is frequently used to clean floors during work hours, and works so fast that a large amount of debris can be removed at noon, between shifts, or continuously if desired.



The modern "air line" is a *Vacuum Line*. Instead of blowing out molds and patterns, operators in many foundries are now provided with connections to a vacuum line. Overhead pipes, cranes, ledges and windows are cleaned systematically on a cleaning schedule. Even the gangways in foundries are cleaned with vacuum and the moulding sand reclaimed.



A vacuum machine picking up soapstone dust in a wire mill.

Compliance with Regulations

Health regulations in most states make thorough and regular cleaning a necessity and even the smallest industries are finding the vacuum systems to be the most economical and satisfactory method.

In foundries, chemical, and many industries where silica or other injurious dusts are generated, a vacuum system becomes imperative because it removes the injurious elements before they are distributed to the air and all parts of the plant.

Vacuum equipment cleans machinery in half the time it can be done by hand, and sucks the dust in rather than blowing or spreading it all over the plant. It cleans boiler tubes and thus increases the efficiency and reduces the amount of fuel consumed. Special insulated fibre tools are provided for cleaning switchboards, motors and other electrical equipment.

Savings in Manufacture

Probably the most important savings result from the fact that dust does not accumulate on the product while it is being manufactured. This is highly important in the watch and radio fields, for instance. In the ceramic industry it is credited with reducing rejects to a minimum. In plastics, it prevents the tremendous losses that result from small amounts of dust on pure white products, and is indispensable for cleaning up machinery between changes in color.

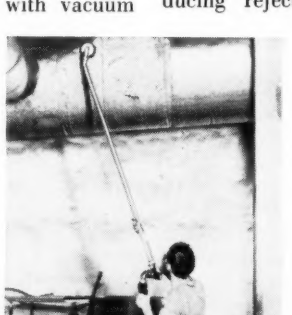


Illustration of the use of vacuum cleaning systems in a tobacco plant.

In most industries there are processes that produce a by-product of fine particles of material that could be reclaimed if the cost of regaining the materials was not too high. Sometimes this reclamation pays for the vacuum cleaning equipment regardless of the other savings.

A watch manufacturer reclaimed enough gold from the cracks and crevices in the gold room to pay for the special equipment on that floor in a year. Babbitt, molding sand, ground rubber, solder and fuel are frequently reported as being reclaimed in substantial quantities by manufacturers who recognize this as an additional saving on top of the reduction in their normal cleaning costs.

Specific Applications

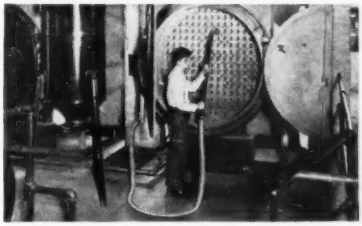
Another unusual application is the use of vacuum cleaning in the shipping room. It cleans the finished goods, the containers, bags, boxes, barrels, and even the freight cars in industries where shipping is an important part of the business.

Vacuum systems are also used to pick up water from floors, to fish out steel chips from engine blocks, to clean radio loudspeakers and food product tanks.

There is apparently no limit to the tonnage or volume of materials that can be handled by a vacuum system, provided, of course, that the debris is of such size that it can pass through a 1½ or 2 inch hose.

Fire and Explosion Hazards: Experts estimate that 28,000 plants in this country may have serious explosion hazards and that the average cost of explosions in the past 20 years has been $90,000 each. An adequate pneumatic or vacuum system is recommended in the majority of codes for the prevention of fires and explosions. These industries include flour and feed mills, grain elevators, pulverizing plants, grinding plants, woodworking plants and the manufacture of aluminum bronze powder. Vacuum systems more than meet the requirements in these and similar industries and often result in a reduced insurance rate.

Insects and Vermin: The vacuum system reaches beyond the point where the eye can see and pulls vermin and insect nests of all kinds out of the plant for good. Bats, bees, beetles, moths and ants are a few of the specimens that have been found in such systems.



Cleaning boiler flues with vacuum system.

Powder Plants consider the system indispensable because it cleans equipment, overhead pipes and structures and does many things that cannot be done by hand.

Even the smallest plants save on fuel costs by cleaning boiler tubes and the insulated vacuum tool is very handy in working around switchboards and other electrical equipment.

Although there are many new and unusual applications of vacuum cleaning being reported every day from many industries, it is not new to industry. Hundreds of equipments installed more than a quarter of a century ago are still in service, saving cleaning costs, improving the product or reducing its cost, and keeping the principal industrial hazards due to dirt and dust down to an irreducible minimum.

Right off the Docket

The trend of litigation on workmen's health and accident compensation is reflected in these briefs of the latest and most representative cases coming to trial in the intervals between issues. Familiarity with this trend is important to every industrialist.

Court Defines Purpose of Workmen's Compensation Act

The Supreme Court of South Carolina, in a recent case, interpreted the purpose of its Compensation Act as follows:

The Workmen's Compensation Act was adopted to protect industrial workers against the hazards of their employment and to cast upon the industry in which they are employed a share of burden resulting from industrial accidents; The primary purpose of the Workmen's Compensation Act is to assure an employee of redress for his injuries, if facts show that he is entitled thereto, and to relieve him of uncertainties of a trial in a suit for damages.

Marchbanks v. Duke Power Co., et al (So. Carolina) 2 S.E. 2nd 825 (May, 1939)

Divided Court Makes Award for Death Resulting from Heart Failure

The employee, 61 years old, suffered a heart attack while working in a coal mine, and died a few minutes thereafter. At the time of the attack he was using a 9 lb. sledgehammer. Shortly before a mass of rock had fallen near the worker, and he had experienced some shock or fright. An autopsy revealed that the deceased's heart was in a weakened condition. The lower court had refused an award on the ground that there was no proof of injury during the course of employment, and that the death was not the result of trauma as defined by the Workmen's Compensation Act.

The Supreme Court, in a 5 to 4 decision reversed the lower court and ordered an award. The Court said: "This case is one of a class which courts have found not easy of solution. Our own decisions have accepted the rule that an accident arises out of the employment, under the terms of the Workmen's Compensation Act, when the required exertion producing the accident, is too great for the man undertaking the work, whatever the degree of exertion or the condition of the man's health. In this case the work the decedent was doing helped in a material degree to cause his death."

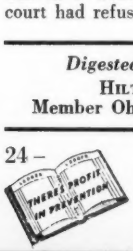
Bergagna v. Department of Labor and Industries (Washington) 91 Pac 2nd 551 (June, 1939.)

Coal Miner Granted $5,000 Judgment Because of Foreman's Faulty Instructions

This was an action for personal injuries. The employer, a coal mine operator had not elected to operate his mine under the Workmen's Compensation Act. The injured worker was engaged in cutting the coal from the mine. The foreman examined the ledge where the work was being done, told the worker the ledge was solid and to proceed with the work. The ledge caved in and the miner sustained injuries.

The defendant sought to avoid respon-

Digested and compiled by
HILTON E. ROBERTS
Member Ohio and New York Bars



sibility on the ground that the worker was contributorily negligent in failing to use props and preserve his own safety. The court rejected this contention, stating that the specific instruction by the foreman to proceed with the work, and his assurance of safety, made the employer liable.

Harlan Ridgeway Mining Co., v. Jackson —(Kentucky) 129 S.W. 2nd 585 (May, 1939)

Shooting of Worker by Discharged Fellow Employee Held to Be "In Course of Employment"

The claimant's husband was engaged with others in fishing up saw logs from the bottom of the employer's pond. The logs were put on boats and unloaded by means of a chain. The workers formulated their own rule that the boat first loaded had the right to use the chain first. Another worker, wrongfully attempted to usurp the claimant's husband's turn at the chain. In resentment the claimant's husband threw a pole at the other. The foreman witnessing the altercation discharged the worker who had tried to use the chain out of turn. This worker left but returned in about an hour, and without further words, shot and killed the claimant's husband.

An award was made for the death on the grounds that claimant's husband was in discharge of the duties of his employment when he was killed, and that the killing resulted from a controversy which grew out of the employment.

Commercial Standard Ins. Co. v. Austin (Texas) 128 S.W. 2nd 836 (May, 1939)

Cancer Caused by Acetylene Torch Spark Award for Death found Proper

In June, 1936, the worker suffered a burn on his hand from a spark while using an acetylene torch. He had been employed for years as a machinist in the company's welding room. He reported the accident to his foreman, but the wound seemed trivial, and nothing was done. The burn refused to heal properly and about 8 weeks later the employee went to his personal doctor who reported a cancer and cauterized the affected spot. After this operation the hand healed rapidly and the employee returned to work, and continued working for several months. But the cancer had metastasized or spread to the upper arm, and in consequence of which the employee died.

The company claimed that there was no real proof of an accident, nor proof that the cancer resulted from any injury sustained during employment. The court said that the fact and circumstances warranted on inference that an injury had been sustained. It was held further that, in view of the lack of medical information as to the cause of cancer, this general rule should prevail in cases of this type: "That if the facts show a causal connection between the injury and the development of cancer, then the two cannot be separated, and the victim of the cancer, or his dependents, is entitled to compensation."

Jeffers v. Manetta Mills et al. (So. Carolina) 3 S.E. 2nd 489 (June, 1939)

Two Hernias Suffered a Week Apart Entitle Claimant to Two Recoveries

On December 17, 1937, the employee sustained an injury which resulted in a hernia. On December 23, he suffered another injury resulting in another hernia. The court in considering the period of disability and the award therefor stated that the act did not specifically provide for an employee who sustains two hernias, within such a short space of time; but construing the act liberally, the holding should be that an employee who suffers two distinct hernias by and through two separate and distinct injuries ought not to be limited to a recovery for only one hernia, even though the periods of disability, or of compensation, may overlap, or run in part concurrently.

Long v. Safety Casualty Co. (Texas) 128 S.W. 2nd 92 (April, 1939)

A Date You Shouldn't Forget

OCTOBER 16-20
IN ATLANTIC CITY

For the 28th National Safety Congress and Exposition.

Plan to be one of the thousands who will be there.

SWING SIGN

Industrial Products Company announce a new all-metal, durable construction safety sign, for use in all cases of interrupted

traffic—either pedestrian or vehicular. The non-tilting frame, plus provisions for colored flags and lanterns makes this new sign useful under many variable conditions.

SAFETY SHIELD

The Sellstrom Manufacturing Company announces a new all-purpose safety shield, made to withstand heat, sparks, and acids. It is easily adjustable to any size head, provides clear full vision, and has the feature of permitting ordinary prescription spectacles to be worn at the same time. The shield is attached to the head-band by friction joints which permit instant raising of the shield over the head, without interfering with glasses he may be wearing.

NEW FLASHLIGHT

Stewart R. Brown Mfg. Co. announces a new completely vapor-proof and water-proof flashlight for use in the presence of explosive liquids and gases. The light is of large size, and has the latest type focusing apparatus.

SAFETY FLOORS

"Rockflux," a floor resurfacing material, which is impervious to heat, acid grease, and oil has been developed by the Flexrock Company. The new material is said to minimize the hazards of slippery floors, and to offer a hard, tight, non-skid surface. It is particularly recommended for the process industries where cleanliness is an important factor.

Additional information and descriptive literature on any of the products mentioned in this service department may be obtained by writing ***Dept. N,*** OCCUPATIONAL HAZARDS & SAFETY, *812 Huron Road, Cleveland, Ohio.*

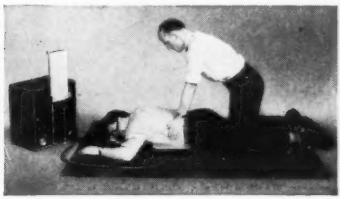
IN THE FIELD

FLUE GAS ANALYZER

The Orsatomat—a device for measuring the percentage of CO_2 in the air, and for draft measuring and flue gas analysis—has been put on the market by the Hays Corporation. The preliminary model was shown at the New York Power Show last December and attracted a good bit of attention. In response to many inquiries, complete information is now available. Illustration shows the streamlined design of the new device.

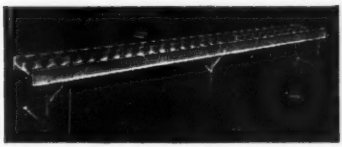
Statements made in connection with any product mentioned in this service department are based on manufacturers' claims. Although these claims are believed to be true, this magazine does not guarantee that to be the case.

ARTIFICIAL RESPIRATION TRAINER



Scientific training of men in administration of artificial respiration has always been difficult. A new device has been developed by the Mine Safety Appliances Co. called the "M.S.A. Artificial Respiration Trainer," which indicates the actual performance of the student in pressure applied to the patient, the volume of air expelled by the patient, the timing and rhythm. The device is claimed to be an excellent way for the teacher and student to watch progress, and to achieve ideal efficiency in resuscitation. It also permits the workers to check their performance periodically, so as to maintain proper efficiency.

PORTABLE CONVEYOR



To eliminate hazards in fields requiring handling large quantities of heavy material where permanent conveyors are not available, the Aluminum Ladder Co. has brought out a portable conveyor. It weighs only 60 pounds. The model illustrated, for instance, is 10 feet long and 14 inches wide. When desired the conveyor can be moved from place to place on wheels attached to the legs. Because the use of aluminum makes the unit so light in weight, it is possible for one man to handle it easily. The new conveyor is supplied with or without legs, and with or without wheels on the legs.

This month in *Washington*

By W. T. CAMERON

Chief Safety Adviser, Division of Labor Standards, U. S. Department of Labor

When Safety Meetings Are Not "Hours Worked"

SEVERAL months ago Elmer F. Andrews, Administrator of the Wage-Hour Division of the U. S. Department of Labor, released an interpretative bulletin covering determination of hours for which employees are entitled to compensation under the Fair Labor Standards Act of 1938.

Paragraph 15 of this Interpretative Bulletin No. 13 reads as follows: "Time spent in attending meetings and lectures sponsored by the employer (whether or not attendance is voluntary) should be considered time worked if such meetings and lectures *are related to the employee's work*, as for example, meetings and lectures for the purpose of teaching the employee the use of new types of machinery on his job, mine rescue, fire prevention and control. In addition, time spent in attending any meetings and lectures should be considered hours worked if attendance is not *wholly voluntary*."

The Administrator has also issued the following elaboration of this paragraph with respect to safety meetings: "Paragraph 15 contains two tests: (1) Whether attendance is voluntary, and (2) whether the meeting or lecture is directly 'related to the employee's work.' In our opinion, safety meetings which take place after working hours and are conducted as part of a general safety program, which is sponsored or approved by a governmental agency or by any recognized independent organization engaged primarily in disseminating safety information, will *not* ordinarily be directly 'related to the employee's work,' and if attendance is voluntary, will not be considered as 'hours worked.'"

As all safety men are well aware, there is the instructional type of meeting where the members of a construction gang, or the employees of a department, are brought together on

the employer's premises to be told about the hazards of the job on hand or to be instructed in their personal responsibilities in doing their job safely and efficiently. Although there may be occasions in industry today when the instructional type of meeting is held partly on company time and partly on the employee's time, it is the generally accepted custom for industry to hold its safety committee meetings, its departmental safety meetings and its instructional meetings wholly on company time. In my opinion, this kind of safety meeting should be considered as being directly related to the employee's work and, therefore, comes under the scope of Paragraph 15 of Interpretative Bulletin No. 13.

There is also the inspirational type of safety meeting, usually held in the evening and sponsored by a local safety council or other safety group, and which custom has established as being on the worker's own time. Safety playlets may be given, outside safety speakers are often engaged and the subjects covered, if at all related to the employee's work, are in rather general terms and cover hazards common to many employments and many industries. For instance, a fifteen-hour First Aid Training Course conducted by a representative of the United States Bureau of Mines in the evening, in a room furnished by an employer (who also furnishes light and heat and bandages) is of certain benefit to the employer, as such training makes his men more safety-conscious and enables them to render efficient first aid which might prevent a minor injury from becoming a serious one. On the other hand, this type of training is of even greater benefit to the worker himself as occasion arises to administer efficient first aid in his own home, while on his vacation or when confronted with an accident on the street or highway.

The statement of the Administrator would seem to answer most questions with respect to inspirational meetings just described. If anyone has any doubt as to the applicability of this statement in particular cases, it is suggested that the facts in the case be transmitted to the Wage and Hour Division for detailed consideration. The Division has indicated a willingness to co-operate in every way possible with persons faced with the "safety meeting" problem.

We are pleased to announce

INDUSTRIAL PLY SKIN PROTECTION

Is Now Available at the Following Points of Distribution

Boise	Cincinnati	Los Angeles	San Francisco
Boston	Cleveland	Milwaukee	Seattle
Brooklyn	Detroit	Montreal	Spokane
Buffalo	Fort Wayne	Philadelphia	Toledo
Chattanooga	Houston	Pittsburgh	Toronto
Chicago	Indianapolis	Portland, Ore.	Vancouver
	Kokomo	Salt Lake City	

MILBURN COMPANY, 905 Henry Street, DETROIT, MICH.

Send for free 40-page descriptive booklet.

This month in *Washington*

By W. T. CAMERON

Chief Safety Adviser, Division of Labor Standards, U. S. Department of Labor

When Safety Meetings Are Not "Hours Worked"

SEVERAL months ago Elmer F. Andrews, Administrator of the Wage-Hour Division of the U. S. Department of Labor, released an interpretative bulletin covering determination of hours for which employees are entitled to compensation under the Fair Labor Standards Act of 1938.

Paragraph 15 of this Interpretative Bulletin No. 13 reads as follows: "Time spent in attending meetings and lectures sponsored by the employer (whether or not attendance is voluntary) should be considered time worked if such meetings and lectures *are related to the employee's work*, as for example, meetings and lectures for the purpose of teaching the employee the use of new types of machinery on his job, mine rescue, fire prevention and control. In addition, time spent in attending any meetings and lectures should be considered hours worked if attendance is not *wholly voluntary*."

The Administrator has also issued the following elaboration of this paragraph with respect to safety meetings: "Paragraph 15 contains two tests: (1) Whether attendance is voluntary, and (2) whether the meeting or lecture is directly 'related to the employee's work.' In our opinion, safety meetings which take place after working hours and are conducted as part of a general safety program, which is sponsored or approved by a governmental agency or by any recognized independent organization engaged primarily in disseminating safety information, will *not* ordinarily be directly 'related to the employee's work,' and if attendance is voluntary, will not be considered as 'hours worked.' "

As all safety men are well aware, there is the instructional type of meeting where the members of a construction gang, or the employees of a department, are brought together on

the employer's premises to be told about the hazards of the job on hand or to be instructed in their personal responsibilities in doing their job safely and efficiently. Although there may be occasions in industry today when the instructional type of meeting is held partly on company time and partly on the employee's time, it is the generally accepted custom for industry to hold its safety committee meetings, its departmental safety meetings and its instructional meetings wholly on company time. In my opinion, this kind of safety meeting should be considered as being directly related to the employee's work and, therefore, comes under the scope of Paragraph 15 of Interpretative Bulletin No. 13.

There is also the inspirational type of safety meeting, usually held in the evening and sponsored by a local safety council or other safety group, and which custom has established as being on the worker's own time. Safety playlets may be given, outside safety speakers are often engaged and the subjects covered, if at all related to the employee's work, are in rather general terms and cover hazards common to many employments and many industries. For instance, a fifteen-hour First Aid Training Course conducted by a representative of the United States Bureau of Mines in the evening, in a room furnished by an employer (who also furnishes light and heat and bandages) is of certain benefit to the employer, as such training makes his men more safety-conscious and enables them to render efficient first aid which might prevent a minor injury from becoming a serious one. On the other hand, this type of training is of even greater benefit to the worker himself as occasion arises to administer efficient first aid in his own home, while on his vacation or when confronted with an accident on the street or highway.

The statement of the Administrator would seem to answer most questions with respect to inspirational meetings just described. If anyone has any doubt as to the applicability of this statement in particular cases, it is suggested that the facts in the case be transmitted to the Wage and Hour Division for detailed consideration. The Division has indicated a willingness to co-operate in every way possible with persons faced with the "safety meeting" problem.

We are pleased to announce

INDUSTRIAL PLY SKIN PROTECTION

Is Now Available at the Following Points of Distribution

Boise	Cincinnati	Los Angeles	San Francisco
Boston	Cleveland	Milwaukee	Seattle
Brooklyn	Detroit	Montreal	Spokane
Buffalo	Fort Wayne	Philadelphia	Toledo
Chattanooga	Houston	Pittsburgh	Toronto
Chicago	Indianapolis	Portland, Ore.	Vancouver
	Kokomo	Salt Lake City	

MILBURN COMPANY, 905 Henry Street, DETROIT, MICH.

Send for free 40-page descriptive booklet.

ARITHMETIC IN EYES

[*Continued from page 10*]

actually paid out by insurance companies for medical expense and for compensation to workers who had eye accidents. The average cost of compensation and medical for *all other accidents*, excluding eye accidents, is $194.

Cost of Eye Injury Is Double Average

The cost of compensation and medical for an eye injury is almost double that of any other average injury. If you have to take your choice between having eye accidents or other types of accidents, you will cut your compensation and medical costs if you eliminate your eye injuries.

Now let's have a look at the causes of eye accidents. Here is a table that shows the type of occupational accident, the part of the body injured, and the average cost of compensation. These figures are based on reports from five state Labor Departments or Industrial Commissions, and here is the table.

Cause	No. of Eye Accidents
Handling Objects	295
Falls	56
Machinery	426
Vehicles	59
Falling Objects	73
Using Hand Tools	1136
Miscellaneous	5463

If you will take a look at the last item on that list, you will see that the miscellaneous classification accounts for 72% of all eye accidents.

What does that prove? First, it proves that the classification is not adequate and that we should certainly make every attempt to obtain a more complete one. Next, it means that, if 72% of the accidents cannot be classified, they must be occurring in all parts of the plant, and therefore this statement justifies the reason for asking everyone in a manufacturing plant to wear goggles.

Watch "Non-Hazardous" Jobs

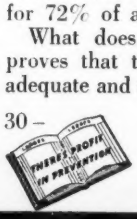
This figure would indicate that the jobs generally regarded as hazardous to eyes are not the jobs where eye accidents occur because the workers usually wear goggles. The jobs where the eye accidents *do occur* are those regarded as not hazardous to eyes and therefore are unnecessarily exposed. Granting that this classification is far from adequate, suppose that we were to cut the number of accidents in the miscellaneous classification to 36% or even down to 20%, I think that you will agree with me that this is a sizable percentage to appear in one classification and still good reason for asking workers all through the plant to wear goggles.

Some industries are less hazardous than others. It is doubtful if it would be necesary for every worker in a textile mill to wear goggles, but I think it's safe to say that every worker in a metal working plant where metal is machined, fabricated, cast or forged, should wear goggles.

How can we prevent some of these accidents and lower our eye injury costs? I'm going to give you two suggestions and neither one of them has anything to do with mandatory rules or making a plant survey.

Show Your Management the Figures

Let's forget eye accidents for a few minutes and look at some other



phases of your business. If your Shop Superintendent or Production Manager wants a new piece of equipment on the floor, he usually fortifies himself with facts and figures concerning the cost of manufacturing a part or a unit with the old equipment and the cost of making those same parts when the new equipment is installed. He can tell you how much money will be saved, what the production will be and the probable return on the money invested. He goes in to see his Works Manager or to the Plant Operating committee with these figures, and the decision to purchase the machine is largely based upon the savings that can be shown.

The Sales Manager could probably walk into your office and put on your desk figures which would show the cost of selling the product in Chicago, the number units sold, the profit per unit, and the total profit for the area. He could tell what his sales costs were in Chicago and how they compared with the costs for Detroit, and he could probably give much other information concerning cost and profit.

Watch Accident Costs

Now let's look at accident costs. How many men can go before an Operating Committee and quote *actual* accident costs, compare this with the cost of equipment needed to eliminate these accidents, and show the savings that can be made? How many men actually know the cost of an eye accident in their plant? You and I both know that it's pretty hard to get Management to spend money without some tangible figures to support the statements we make.

One of the most important and perhaps the first thing to do in starting a good eye protection program is to *keep adequate and accurate records of accident costs.* In addition to getting a man's personal history, be sure you find out what he was doing when the accident occurred, how he

Indicating the necessity for wearing goggles in working with fume-producing liquids.

was doing it, and any other allied information. Ask the plant hospital to furnish you with a record of their cost of medical expense. The accounting department can give you figures concerning the compensation or lost time and lost machine time. The foreman or superintendent can tell you whether work was spoiled and give you other information that can be added to your report.

The second suggestion is this:

Make your report to the Management in terms of dollars and cents and not in man hours. I do not think that the average executive in the front office can translate man hours into dollars and cents very quickly because rates vary with departments and jobs. If you tell him that you lost 200 man hours in a department last month and you would like $100 to buy goggles, he sees nothing in this proposition except an expense of $100. If, however, you tell him that you lost $200 in your department last month because of eye injuries and you'd like $100 to equip everybody with goggles to prevent a recurrence of this expense, I think you'll get a much better reception and quicker approval of your project.

Case Histories

Now let's look at the cases of a few plants who have done exactly this: In 1929, a company in the metal working industry employed 41,500 people, and their bill for eye accidents in that year alone was $51,000, better than a dollar per employee. The Safety Director was on his toes and saw what could be done. He presented his figures to the Management and received their support in the inauguration of an eye protection program. In 1936 the company employed 43,500 employees or 2,000 more people than in 1929. Their bill for eye injuries however, was $5800 as contrasted with $51,000—quite a drop I think you will agree. Now assuming that they paid $30,000 for eye protection equipment, this manufacturer is still fifteen thousand dollars ahead of his 1929 figure and that's certainly a sizable saving.

Let's look at a smaller company employing about 2700 people. Here we have a record of their eye accident costs for eight years preceding the inauguration of an eye protection program and for the eight years following. In 1920 this company paid out $3500 for eye accidents when they had 1,114 people. Over the next eight years this total accumulated to $19,942. In 1928 they put into operation an eye protection program and their bill for eye accidents that year was a little over $50. In the next eight years, the cost of eye accidents accumulated to a total of $3,334 or $16,600 less than for the previous eight years. That is not all of the story, however, because from 1928 to 1936, the number of employees increased from 1100 to 2600, so that this $3300 total was for eye accidents that occurred when more than 2000 people were employed, whereas the $19,000 total was for eye accidents that occurred while less than 2000 people were employed. Many deductions can be drawn from these figures and I think you will agree that they make an impressive report to Management and will support the Safety Director's statement of the importance of his work.

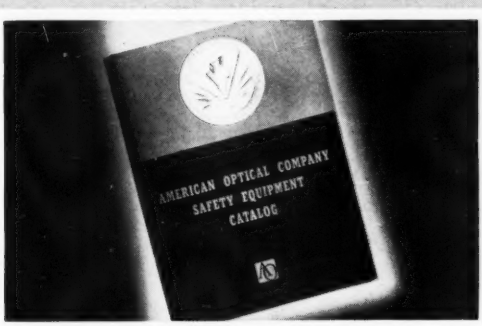
Bearing in mind the figures we have mentioned, there are three significant points to remember:

1. Eyes are expensive targets, which is shown by costs of compensation, medical service, and lost time.

2. 72% of all eye injuries occur on jobs now regarded as nonhazardous to eyes.

3. Remembering these figures—aren't goggles cheaper than accidents?

Announcing



THE PUBLICATION OF AN

Important New Book

From head to ankles, the complete line of American Optical Industrial Safety Equipment is described in this compact, quick-reading catalog.

This book contains full information on how to order the proper type, size, and materials of equipment for every worker on every kind of hazardous job. And it will directly enable you to take advantage of all the benefits of concentrating all your purchasing requirements on one source . . . *under one responsibility for quality, promptness, service.*

Everyone concerned with the safety of industrial workers should have a desk copy of this catalog for ready reference. And you can obtain *yours* by simply signing and sending the coupon *now.*

American Optical Company

***100 pages of useful information on the complete line of* American Optical Safety Equipment**

- EYE PROTECTION EQUIPMENT . . . For Every Hazard.
- WELDING HELMETS & HANDSHIELDS
- FIRST AID KITS
- RESPIRATORS, HELMETS, HOODS
- GLOVES, APRONS, LEGGINGS & SAFETY CLOTHING

AMERICAN OPTICAL COMPANY
SOUTHBRIDGE, MASSACHUSETTS

Without obligation, send me a copy of your new complete INDUSTRIAL SAFETY EQUIPMENT CATALOG.

NAME:.....

COMPANY:.....

ADDRESS:.....

..... (OH)

M·S·A *Announces*

ALL-VISION FACEPIECE GAS MASKS

U. S. BUREAU OF MINES APPROVED!

Increased comfort, greater safety, higher efficiency are ideally combined in the new "All-Vision" facepiece, now standard for all M.S.A. Gas Masks.

M.S.A.'s practical experience and basic knowledge of today's requirements of gas protection are reflected in new proved-in-service features that appeal to both wearer and purchaser of gas masks.

New WIDE VISION!

Larger, scientifically proportioned lenses give more effective vision, greater efficiency . . . reveal the wearer's entire normal seeing area, yet there is no extra glass surface to pick up reflections or add to the weight and breakage hazard.

New COMFORT!

The M.S.A. "All-Vision" facepiece fits closely and securely with minimum tension of headbands. Careful design based on wide experience has eliminated all "pressure points" which cause headaches and fatigue. Condensate drains out through the highly-efficient U. S. Army-type exhalation valve. Reduced dead air space cuts down rebreathing of exhaled air.

New FOG-PROOF CONSTRUCTION!

A special built-in fog-proof construction, plus the reduction of dead air space inside the new M.S.A. "All-Vision" facepiece prevents fogging of the lenses. No anti-fog preparations are needed to assure clear vision at all times.

New LIGHT WEIGHT!

Light weight has been achieved without sacrificing visibility, service or durability. With inhalation tube and headbands, it weighs only 18 ounces.

New VALUE!

Construction includes such quality features as: Stainless Steel lens frames and trim, shatterproof, extra-clear Triplex lenses, quick-action Swivel-Buckle fasteners, and new type All Rubber headbands.

Write today—

Get the full story of this remarkable new facepiece! Become familiar with its safety and economy features. Equip your men with the most comfortable, most efficient gas masks. Write today for a demonstration.

INDUSTRIAL SAFETY EQUIPMENT ASSOCIATION

25 YEARS OF SAFETY

MINE SAFETY APPLIANCES COMPANY

BRADDOCK, THOMAS & MEADE STREETS, PITTSBURGH, PA.

District Representatives in Principal Cities

TER WEARING
IFORT WITH
VISION